

IN THE APPLICATION

OF

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FOR

Apparatus for Holding and Retaining a Motor
Vehicle for Lifting

FILED WITH

THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to anchor stands and, more specifically, to a vehicle holding apparatus for use as a support platform engaging the frame of the vehicle. The apparatus is comprised of spaced apart longitudinal crossbeams having a spacer medially positioned and end plates fastened at the distal end. The end plates have apertures providing means for attaching a stand suspending the crossbeams therebetween. The present invention further comprises a planar base plate, an L-shaped frame anchor insert and a frame anchor sleeve having a cantilevered bracket forming an integral part therewith.

A pair of frame anchor assemblies are positioned within and spaced at opposing ends of the transverse channel formed by the crossbeams. The frame anchor inserts are fastened to base plates by means of fasteners wherein they are contained between the crossbeams with the base plates engaging the bottom

surface of the crossbeams. The lower horizontal portion of the L-shaped frame anchor inserts form the guide member for slidably positioning the frame anchor assemblies. The frame anchor sleeves have a plurality of recesses that mate with opposing recesses positioned within the frame anchor inserts. A bearing plate having a slot conforming substantially to the frame anchor insert is fastened encompassing the vertical portion of the L-shaped frame anchor insert that continues to extend therethrough whereby the frame anchor sleeve can be placed thereon once the recesses of the frame anchor sleeve and frame anchor insert are aligned fasteners are inserted to fix said positioning. The frame anchor sleeve while being fastened to the frame anchor insert also engages the upper bearing plate thereby fixedly positioning the frame anchor assembly within the spaced apart crossbeams. Once positioned the opposing cantilevered brackets will engage the bottom of the vehicle frame while the adjacent wall engages the vehicle frame wall thereby creating a vehicle holding system.

Description of the Prior Art

There are other support devices designed for automotive tasks. While these support devices may be suitable for the purposes for which they were designed, they would not be as suitable for the purposes of the present invention, as hereinafter described.

It is thus desirable that there exist an apparatus for holding a motor vehicle that is designed for use with heavier vehicles such as SUV's or full frame trucks whereby frame straightening and other related automotive tasks can be performed.

SUMMARY OF THE PRESENT INVENTION

A primary object of the present invention is to provide an apparatus for holding a motor vehicle for heavier vehicles such as pickup trucks and SUV's.

Another object of the present invention is to provide an apparatus for holding a motor vehicle that prevents movement of the vehicular frame after positioned therein.

Yet another object of the present invention is to provide an apparatus for holding a motor vehicle that reduces the setup time for vehicle frame adjustments.

Still yet another object of the present invention is to provide an apparatus for holding a motor vehicle wherein pressure can be applied in either pulling or pushing without the vehicle being displaced from the preselected operative position.

Another object of the present invention is to provide an apparatus for holding a motor vehicle having a pair of spaced apart crossbeams having a medially positioned spacer and fixedly positioned end plates fastened to their distal ends.

Yet another object of the present invention is to provide an apparatus for holding a motor vehicle wherein said crossbeam end plates have means for attaching stands thereto.

Still yet another object of the present invention is to provide an apparatus for holding a motor vehicle wherein frame anchor assemblies are slidably contained within the spaced apart crossbeams.

Another object of the present invention is to provide an apparatus for holding a motor vehicle wherein the frame anchor assemblies engage the base and adjacent exterior wall of said vehicular frame.

Yet another object of the present invention is to provide an apparatus for holding a motor vehicle wherein the frame anchor assemblies have planar

members engaging the top and bottom sides of the crossbeams.

Still yet another object of the present invention is to provide an apparatus for holding a motor vehicle wherein the frame anchor assembly further comprises a frame anchor sleeve.

Yet another object of the present invention is to provide compatible recesses within the frame anchor insert and frame anchor sleeve whereby said components can be fastened together.

Additional objects of the present invention will appear as the description proceeds.

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawings, which forms a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. In the accompanying drawings, like reference characters designate the same or similar parts throughout the several views.

The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is best defined by the appended claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawing in which:

FIGURE 1 is an illustrative view of the present invention in use;

FIGURE 2 is a perspective view of the present invention;

FIGURE 3 is an exploded view of the transverse assembly of the present invention.

FIGURE 4 is a sectional view of the frame anchor assembly within the treadway.

FIGURE 5 is an enlarged view of the supportive vehicle frame anchor sleeve.

FIGURE 6 is an enlarged view of the bearing plate.

FIGURE 7 is an enlarged view of the frame anchor insert.

FIGURE 8 is an enlarged view of the treadway.

FIGURE 9 is an enlarged view of the base plate.

DESCRIPTION OF THE REFERENCED NUMERALS

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, the figures illustrate the Vehicle Holding System of the present invention. With regard to the reference numerals used, the following numbering is used throughout the various drawing figures.

- 10 apparatus for holding and retaining a vehicle to be lifted
- 11 transverse assembly
- 12 treadway
- 14 crossbeam of 12
- 15 transverse channel of 14
- 16 end plate of 12
- 17 recesses of 16
- 18 spacer element of 12
- 20 frame anchor assembly
- 22 frame anchor sleeve
- 24 recesses of 22

- 26 cantilevered bracket of 22
- 27 hollow interior of 22
- 28 frame anchor insert
- 30 vertical portion of 28
- 32 horizontal portion of 28
- 34 top of 32
- 36 bottom of 32
- 38 threaded recesses of 30
- 40 threaded recesses of 36
- 42 bearing plate
- 44 slotted cut-out of 42
- 45 frame anchor assembly securing means
- 46 base plate
- 48 recesses of 46
- 50 threaded bolt
- 52 vehicle
- 54 retaining flange of 16

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The following discussion describes in detail one embodiment of the invention. This discussion should not be construed, however, as limiting the invention to those particular embodiments, practitioners skilled in the art will recognize numerous other embodiments as well. For definition of the complete scope of the invention, the reader is directed to appended claims.

FIGURE 1 is an illustrative view of the present invention **10** in use. The present invention **10** is an apparatus for holding and retaining a vehicle **52** that is to be lifted comprising at least two elongated transverse assemblies **11** with each treadway **12** including a pair of laterally repositionable frame anchor assemblies **20** for supporting a motor vehicle **52** whereby abutting the frame anchor assemblies **20** to the side and bottom of the vehicle=s underlying frame members allows the vehicle **52** to rest on its frame and not the suspension thereof. The opposing ends of the treadway **12** are connected to various suitable anchoring devices. A frame-straightening device can be used during use of the present invention **10** considerably decreasing the labor associated with auto body repair tasks.

FIGURE 2 is a perspective view of a transverse assembly **11** of the present invention **10**. The transverse assembly **11** of the present invention **10** comprises a treadway **12** formed by a pair of spaced apart elongate crossbeams **14** bound together at the opposing ends thereof by endplates **16** and a pair of removable and laterally repositionable frame anchor assemblies **20** disposed in the transverse channel **15** between said crossbeams **14** which may slide laterally across the surface thereof giving the apparatus compatibility with a wide range of motor vehicle **52** frame sizes.

FIGURE 3 is an exploded view of a transverse assembly **11** of the present invention **10**. Shown is the treadway **12** comprised of a pair of spaced apart crossbeams **14** conjoined by a pair of end plates **16** on the distal ends thereof. The end plates **16** have a plurality of recesses **17** extending therethrough. The frame anchor assembly **20** includes a frame anchor sleeve **22** with a hollow interior **27** into which the vertical portion **30** of the frame anchor insert **28** is inserted. A plurality of recesses **24** in the frame anchor sleeve **22** align with the threaded recesses **38** that pass through the entirety of the frame anchor insert **28**.

and threaded bolts **50** are inserted therein to secure the two components together.

A cantilevered bracket **26** projects from the frame anchor sleeve **22** on which the frame of the vehicle **52** is to rest as the upper portion of the frame anchor insert **28** sits flush thereagainst. The slotted bearing plate **42** is seated flush on the top side **34** of the horizontal portion **32** of the frame anchor insert **28** and is welded thereto. A frame anchor assembly **22** securing means **45** comprises a base plate **46** having a plurality of recesses **48** that align with a plurality of threaded recesses **48** disposed on the bottom **36** of the horizontal portion **32** of the frame anchor insert **28** and threaded bolts **50** are inserted therethrough as the bearing plate **42** and base plate **46** are pulled towards one another against the treadway **12** to serve as a sandwich clamp to prevent the frame anchor assembly **20** from inadvertent lateral or vertical movement once in the selected position. A spacer element **18** in the transverse channel **15** is in communication with the two crossbeams **14**.

FIGURE 4 is a sectional view of the frame anchor assembly **20** within the treadway **12**. The base plate **46** is flush to the lower outer surface of the crossbeams **14** and the bearing plate **42** is flush to the upper outer surface of the

crossbeams **14**. When the bolts **50** are loosened the base plate **46** has ample space between its surface and the crossbeams **14** for the lateral movement of the frame anchor assembly **20** along the treadway **12** and the bolts **50** may be tightened when the lateral movement thereof is not desired. The bolts **50** pass through the recesses **48** of the base plate **46** and are threaded into the threaded recesses **40** in the bottom **36** of the horizontal portion **32** of the frame anchor insert **28**. The frame anchor sleeve **22** encompasses the frame anchor insert **28** and rests on the surface of the bearing plate **42**. The width of the frame anchor insert **28** is slightly smaller than the distance in the transverse channel **15** of the treadway **12**.

FIGURE 5 is an enlarged view of the frame anchor sleeve **22**. The frame anchor sleeve **22** is comprised of a tubular rigid material having a plurality of recesses **24** and a cantilevered bracket **26** extending therefrom. The frame anchor sleeve **22** slides over the frame anchor insert **28** and rests flush on the surface of the bearing plate **42**.

FIGURE 6 is an enlarged view of the bearing plate **42**. The frame anchor

insert has a bearing plate fabricated of a rigid planar material with a slotted cut-out 44 therein. The frame anchor sleeve 22 will rest on the edge surface surrounding the slot. The width of the frame anchor sleeve 22 is greater than the distance in the slot of the bearing plate 42. The dashed line indicates the resting edge of the frame anchor sleeve 22.

FIGURE 7 is an enlarged view of the frame anchor insert 28 which is fabricated of a rigid material having a plurality of threaded recesses 40 drilled and tapped 1 3/4@ deep on the bottom 36 of the horizontal portion 32 for the attachment of the base plate 46 to the frame anchor insert 28. The width and length of the vertical portion 30 of the frame anchor insert 28 is smaller than the hollow interior 27 of the frame anchor sleeve 22 and slot within the bearing plate 42. The threaded recesses 38 of the vertical portion 30 of the frame anchor insert 28 pass entirely therethrough.

FIGURE 8 is an enlarged view of the treadway 12. The treadway 12 of the present invention 10 is comprised of two rigid elongate crossbeams 14 conjoined by end plates 16 fixedly bound on the opposing ends thereof with a

plurality of recesses **17** and a supportive extending lip thereon. The end plates **16** will accept a wide variety of vehicle anchor stand systems. The extended retaining flanges **54** on the end plates **16** will rest on the surface of the anchor stand attaching plates decreasing the vehicle weight load on the fasteners preventing them from shearing.

FIGURE 9 is an enlarged view of the base plate **46**. The base plate **46** of the present invention **10** is comprised of a rigid planar material having a plurality of recesses **48** therein. The base plate **46** is removably attached to the frame anchor insert **28**. The base plate **46** prevents vertical movement of the laterally moveable frame anchor assembly **20** relative to the treadway **12**.

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described and are pointed out in the annexed claims, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.